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The clinical relevance of potential drug-drug interactions (DDIs) with bictegravir/emtricitabine/tenofovir alafenamide (B/F/TAF) – Real-world data from the German IQVIA prescription database

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Background

As people living with HIV (PLWH) age on antiretroviral treatment (ART), co-medication with no or low interaction potential is becoming more relevant in everyday clinical practice. This analysis of longitudinal prescription information in PLWH in Germany focusses on the frequency of concomitant drugs and potential DDIs with ART in PLWH receiving B/F/TAF.

Methods

Data were obtained using the IMS® LRx database (IQVIA), which covered about 80% of prescriptions reimbursed by German statutory health insurance providers from 07/2018 to 06/2019, i.e. the MAT (moving annual total) as of 06/2019, one year after market authorization of B/F/TAF in Europe.

- The study population consists of PLWH on continuous B/F/TAF for ≥3 months.
- Co-medications of patients are analyzed on the basis of E*ph*MRA ATC (European Pharmaceutical Market Research Association Anatomical Therapeutic Chemical) classes level 3 and substances.
- The HIV Drug Interaction database of the University of Liverpool (https://www.hiv-druginteractions.org/checker) was used to determine the DDIs between prescribed concomitant medications and B/F/TAF. In this database, green color signals "no interaction expected", amber/orange "potential interaction" and red "contraindication, co-administration not recommended".

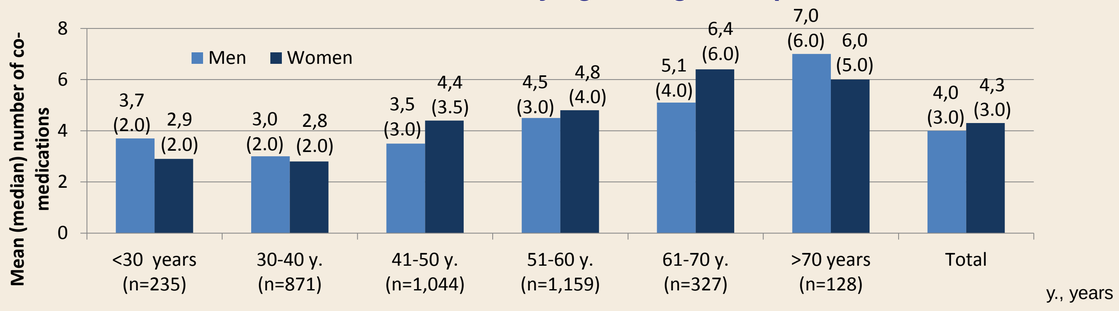
Results

Study population

Among 4,893 PLWH on B/F/TAF, 3,764 PLWH (77%) received ≥1 co-medication.

- Of those, 69% were men, 13% women, 18% of unknown gender. The majority of patients was between 41 and 60 years old (59%) (≤40 years (29%) and ≥61 years (12%)).
- The mean (median) number of co-medications was 4.0 (3.0) (Figure 1).

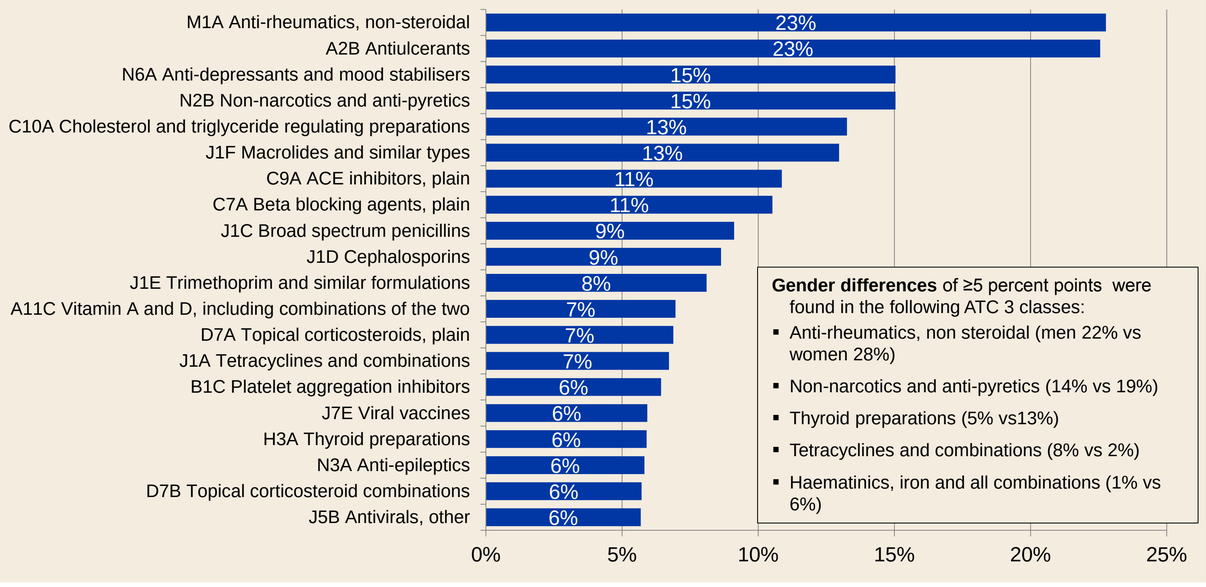
Figure 1. Number of co-medications stratified by age and gender (in PLWH on co-medication)



Top 20 ATC3 classes of co-medication

Most commonly prescribed drugs classified by E*ph*MRA ATC level 3 in MAT 06/2019 were non-steroidal anti-rheumatic drugs (in 23% of patients on concomitant medications [n=857]), antiulcerants (23%, n=849), anti-depressants (15%, n=566) and other analgesics/antipyretics (15%, n=566) (Figure 2).

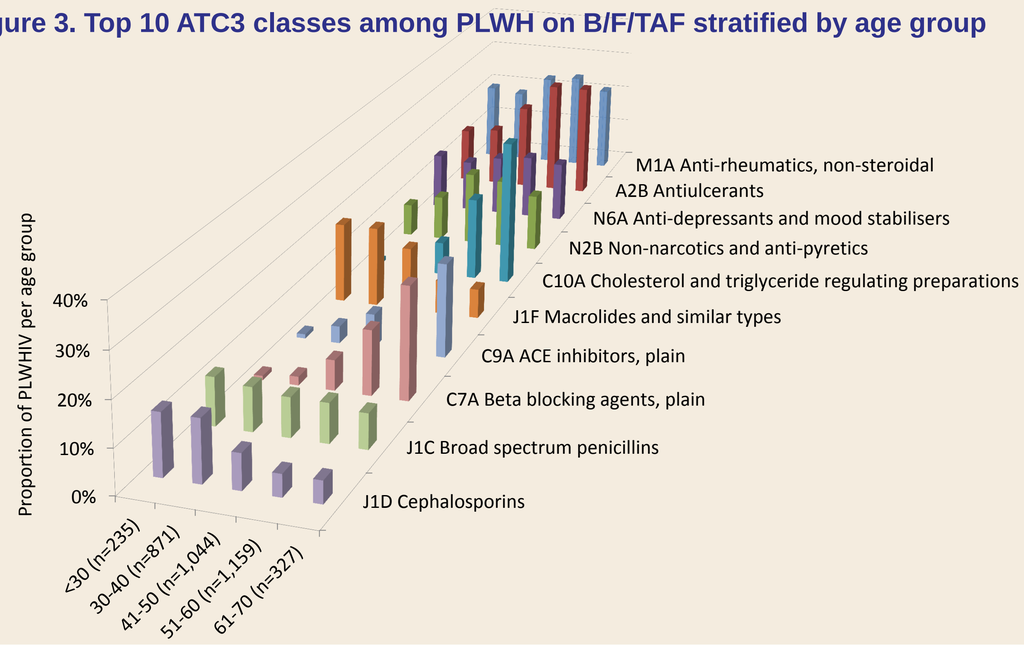
Figure 2. Top 20 ATC3 classes of B/F/TAF co-medications



Concomitant medication stratified by gender and age group

The top 10 ATC3 classes stratified by age groups are shown in Figure 3.
Beyond the top 10, frequently prescribed medication classes included, in the age group <40, tetracyclines and combinations (J1A; 12% of patients), platelet aggregation inhibitors (B1C; 10%, 21% and 19% of age groups 51-60 years, 61-70 y., and >70 y., respectively), calcium antagonists, plain (C8A; 12% of age group 61-70 y., 18% of age group >70 y.) and diuretics (C3A; 12% of age group 61-70 y., 16% of age group >70 y.).

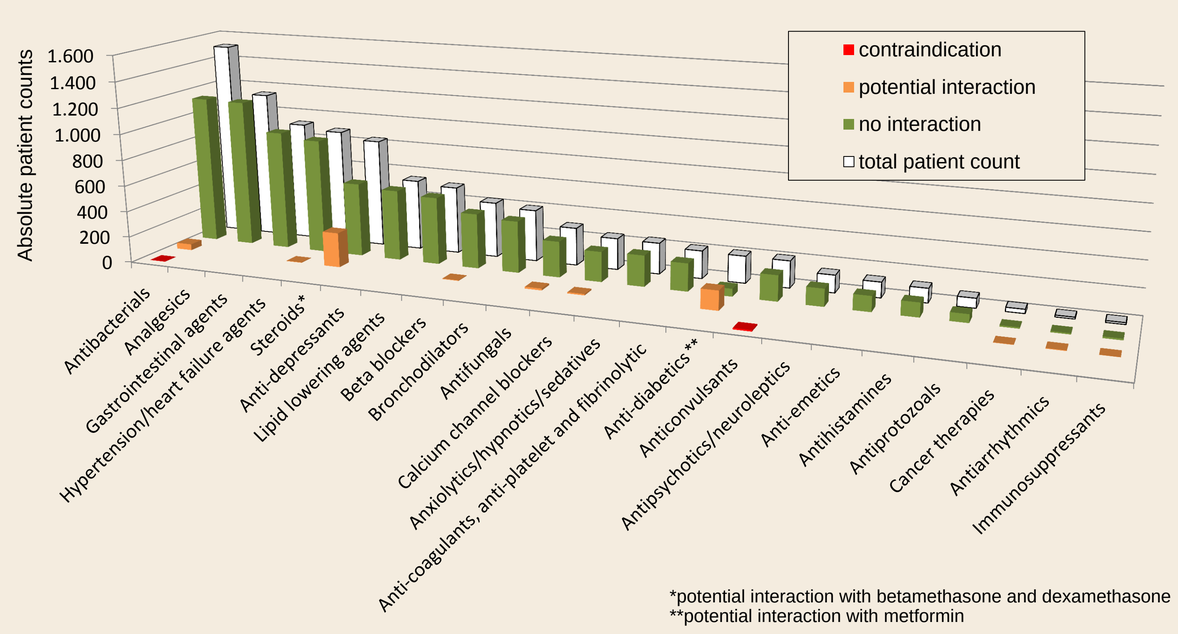
Figure 3. Top 10 ATC3 classes among PLWH on B/F/TAF stratified by age group



Interaction potential of concomitant medications

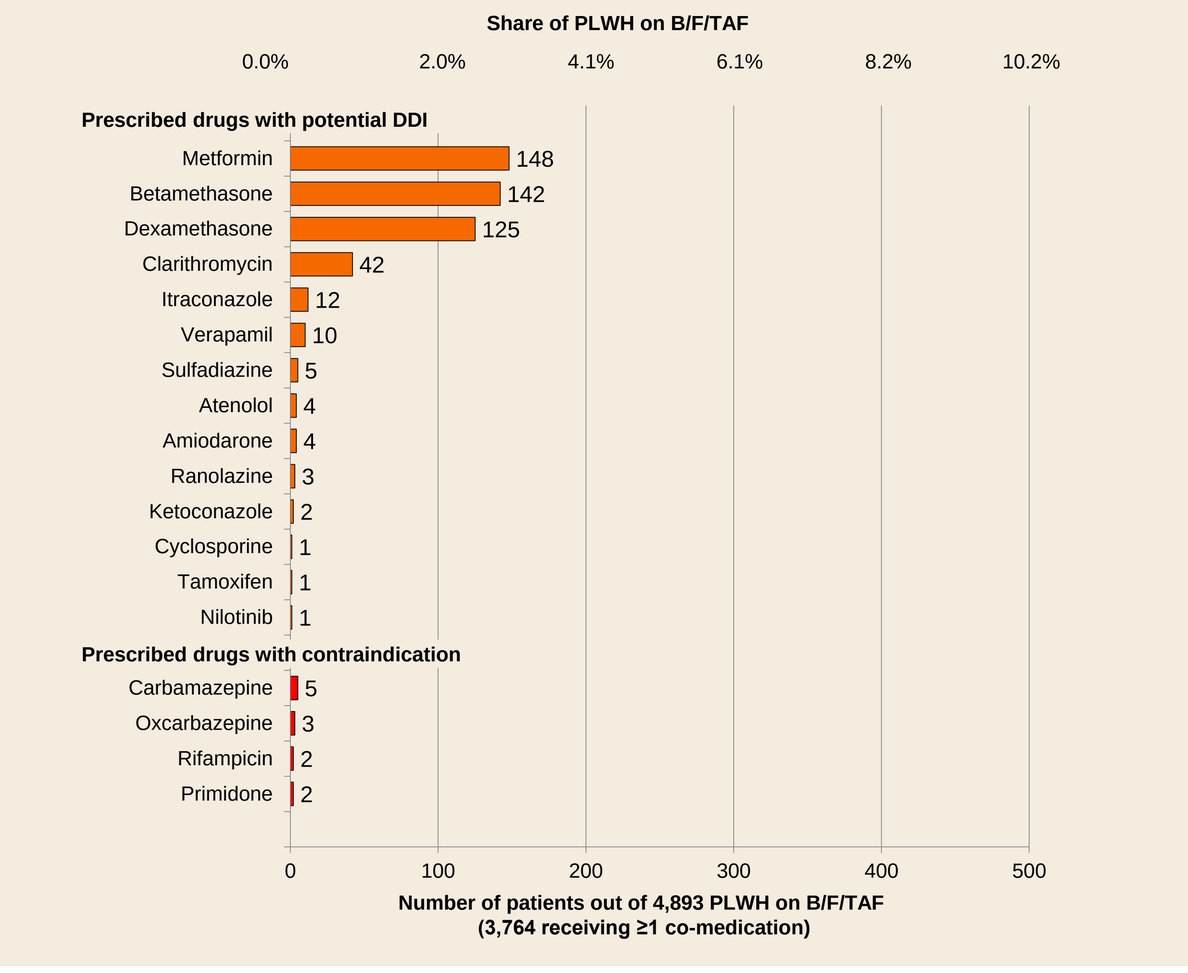
Several of the most commonly used co-medication classes posed no interaction risk to B/F/TAF according to the Liverpool database. Among them were antiulcerants (the most frequently prescribed substance was pantoprazole, 16% of 3,764, n=620), anti-rheumatics (ibuprofen, 15%, n=565), anti-depressants (mirtazapine, 3%, n=102) and lipid lowering agents (atorvastatin, 7%, n=270). Figure 4 shows the DDI profile the of study cohort; of note, some drug classes used by the Liverpool database differ from E*ph*MRA ATC 3 classes (e.g. "antibacterials" encompasses several E*ph*MRA ATC 3 classes). For ≥90% of PLWH receiving B/F/TAF, the concomitant medications posed no or no relevant risk for interaction.

Figure 4. DDI profile of PLWH on B/F/TAF in MAT 06/2019 – according to the Liverpool HIV Drug Interaction database



- The only potentially relevant DDIs identified in ≥10 patients included metformin, betamethasone, dexamethasone, clarithromycin, itraconazole and verapamil (Figure 5). When prescribing these substances, Liverpool database recommends caution, as dose adjustments may be needed. Any drug with potential for DDIs was used in ≤3% of PLWH on B/F/TAF (Figure 5).
- Contraindicated medications were used in ≤0.25% of the cohort. These were confined to specific drugs from anti-convulsants and antibacterials. Alternatives should be sought, since co-administration is not recommended due to pharmacological interaction with B/F/TAF or one of its components.

Figure 5. Prescribed drugs with potential DDIs and contraindicated drugs with B/F/TAF



Conclusions

- In comprehensive overview of concomitant medication, 77% of PLWH on B/F/TAF received ≥1 co-medication. Contraindicated medications were used in <0.25% of the cohort. Any drug with potential for DDIs was used in <3% of PLWH on BFTAF.
- In those cases with potentially relevant DDI, the individual medications can be replaced by other compounds of the same drug class member without potential interaction with B/F/TAF according to the Liverpool HIV database.
- Although this evaluation was limited by the exclusion of over-the-counter drugs with potential for DDIs (such as mineral supplements or St. John´s wort), the overall potential for DDIs with B/F/TAF is low and manageable in clinical practice.

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